

-3-

G. All dischargers must first obtain an NPDES Permit before any discharge of sewage to a water of the Commonwealth is authorized pursuant to the Federal Clean Water Act, 33 U.S.C., Section 1251 and the Clean Streams Law, 35 P.S. §691.1 et seq. Neither the Township nor the Authority have an NPDES Permit authorizing a discharge into a water of the Commonwealth from the Kearsarge Bypass.

H. The construction of an unpermitted bypass is a violation of Section 207 of the Clean Streams Law, 35 P.S. §691.207, which constitutes a nuisance pursuant to Section 207 of the Clean Streams Law, 35 P.S. §691.207, and unlawful conduct pursuant to Section 611 of the Clean Streams Law, 35 P.S. §691.611.

I. The discharge of sewage and the construction of the unpermitted bypass constitutes pollution and potential pollution of the waters of the Commonwealth, is against public policy and is a public nuisance pursuant to Sections 3, 401 and 402 of the Clean Streams Law, 35 P.S. §§691.3, 691.401 and 691.402.

J. The discharge of sewage into a water of the Commonwealth from an unpermitted bypass constitutes a violation of the Part II permit and a violation of Sections 201 and 202 of the Clean Streams Law, 35 P.S. §§691.201 and 691.202, and thereby constitutes a nuisance pursuant to Sections 3 and 202 of the Clean Streams Law, 35 P.S. §§691.3 and 691.202, and unlawful conduct pursuant to Section 611 of the Clean Streams Law, 35 P.S. §691.611.

K. On September 13, 1989, the City of Erie entered into a Consent Decree, Commonwealth Court Number 348 M.D. 1989, which requires, inter alia, the City and all municipalities tributary to the City of Erie's sewerage system to assess present and future area-wide sewage needs.

MSA-MT 6753

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L. Since the Township is tributary to the City of Erie's sewage system, on January 31, 1991, the Department requested that the Township and the Authority perform a special study to provide accurate sewage flow information and to assess the present and future sewage needs of the Township ("Special Study"). An outline of the tasks to be performed in conjunction with the Special Study was submitted to the Department by the Township and Authority in the form of a Task Activity Report ("TAR") which was approved by the Department on April 19, 1991. The TAR for the Special Study is attached as Appendix A and is incorporated herein by reference.

M. Section 203 of the Clean Streams Law, 35 P.S. §691.203, requires, inter alia, municipalities to undertake studies, prepare and submit reports to the Department, cooperate with other municipalities and to repair, alter, or correct the operation of a sewer system to prevent pollution.

N. Section 210 of the Clean Streams Law, 35 P.S. §691.210, requires a municipality to diligently comply with any Order issued pursuant to Section 203 of the Clean Streams Law.

O. The parties desire to resolve this matter without resorting to further litigation.

Order

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of covenants contained herein, the parties, intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by the Township and the Authority as follows:

1. This Consent Order and Agreement is an Order of the Department authorized and issued pursuant to Sections 5, 203, 316, 402, and 610 of the Clean Streams Law, 35 P.S. §§691.5, 691.203, 691.316, 691.402, and 691.610, Section 750.10 of the Sewage Facilities Act, 35 P.S. §750.10, and by Section 1917-A of the Administrative Code, 71 P.S. §510-17.

MSA-MT 6754

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2. The Township and the Authority shall perform the following milestones in accordance with the following schedule (the milestones include, but are not limited to, all tasks listed in the TAR of the Special Study which are incorporated herein by reference):

<u>MILESTONE</u>	<u>REQUIRED DATE</u>
a. Install a flow meter to monitor the volume of sewage discharged to Walnut Creek via the Kearsarge Bypass.	04/01/92
b. Complete the first portion of the Special Study to determine the volume of sewage flows entering into the City of Erie's interceptor system by completing Tasks 1.1, 1.2, 1.3 and 1.5 of the TAR and submitting to the Department an interim flow study report as detailed in Task 1.4 of the TAR. The report shall also include the steps taken to complete Tasks 1.1, 1.2, 1.3 and 1.5; the dates each such Task was completed and the study results from each Task.	02/28/92
c. Complete the second portion of the Special Study to determine the volume of sewage flows at subregional interceptor networks by completing Tasks 2.1, 2.2 and 2.3 of the TAR and submitting to the Department an interim flow study as detailed in Task 2.4 of the TAR. The report shall also include the steps taken to complete Tasks 2.1, 2.2 and 2.3; the date each such Task was completed and the study results from each Task.	04/30/92
d. Submit to the Department a third interim flow study report as detailed in Task 3.1 of the TAR.	05/31/92
e. Complete the alternatives evaluation as detailed in Task 3.2 of the TAR and submit to the Department the evaluation and conclusions. In addition, a schedule of corrective measures shall be submitted to the Department designed to increase the capacity within the Millcreek Township sewer system. Said implementation schedule shall, at a minimum, include dates leading to timely completion of the stormwater retention basin described in correspondence from the Authority to the Department dated June 21, 1991 (attached hereto as Appendix B and incorporated by reference) and a date by which the Kearsarge Bypass will be removed.	06/30/92

3. Upon approval by the Department of the corrective measures and the implementation schedule for those measures submitted to the Department by the Township and Authority pursuant to Paragraph 2.e., the corrective measures and schedule of implementation shall be incorporated into this Consent Order and Agreement as an enforceable obligation of this Order as if set forth fully herein.

4. The Authority shall immediately notify the Department of any bypass event within the Millcreek Township sewer system and shall, upon installation of the bypass meter described in Paragraph 2.a., submit monthly notification to the Department containing a statement of gallons of sewage discharged to Walnut Creek via the bypass, duration of bypass event(s) and date of bypass event(s). The report shall be submitted to the Department at the address set forth in Paragraph 17 prior to the fifteenth (15th) day of the succeeding calendar month.

5. If the Department requires additional information for any submittal pursuant to this Consent Order and Agreement, Department permit, Department permit application or under the laws and regulations of the Commonwealth of Pennsylvania or the United States, the Township and Authority shall provide such information to the Department within fifteen (15) days unless a longer time is provided for in the Department's notice.

6. Commencing January 1, 1992, and continuing quarterly thereafter, the Township and the Authority shall submit to the Department written reports of their efforts to comply with the requirements of this Consent Order and Agreement. Said reports shall include, but not be limited to, a detailed description of the corrective action that has been taken to remove sources of infiltration and eliminate all unauthorized bypasses in the Millcreek Township sewer system.

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7. In the event that the Township and/or Authority fail to comply with any term or provision of this Consent Order and Agreement, the parties agree that all areas in the Township with wastewater flow being tributary to the Kearsarge Pump Station will be in disapproved planning status and that no connections may be made to the sewer system in those areas. Moreover, the parties agree that the Township, or any local planning agency acting on its behalf, may not approve a subdivision plan nor issue a building permit in the above-described areas until the Township and Authority comply with the breached term or provision and written authorization is granted from the Department.

8. Within fifteen (15) days of the date of execution of this Consent Order and Agreement, the Township and the Authority shall pay a civil penalty in the amount of fifteen thousand dollars (\$15,000.00) for the violations set forth in Paragraphs F, H, I and J above, covering the dates specifically identified and no others. The payment shall be made by corporate check or the like made payable to the "Commonwealth of Pennsylvania Clean Water Fund" and sent to the individual at the address set forth in Paragraph 17.

9. In the event the Township and the Authority fail to comply in a timely manner with any term or provision of this Consent Order and Agreement, the Township and the Authority shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a civil penalty in the amount of one hundred dollars (\$100.00) per day for each violation. The penalty shall be due automatically and without notice. Such penalty payments shall be payable monthly on or before the fifteenth (15th) day of each succeeding month, and shall be forwarded as described in Paragraph 8.

MSA-MT 6757

App. 105

It is understood by the parties hereto that payment of any money hereunder shall neither constitute a waiver of the Township's and the Authority's duty to meet its obligations under this Consent Order and Agreement nor preclude the Department from commencing an action to compel the Township's and the Authority's compliance with the terms and conditions of this Consent Order and Agreement, or any applicable statute, rule, regulation, permit or order of the Department.

10. a. If, during the period from the effective date of this Consent Order and Agreement until April 1, 1992, a bypass discharge occurs at the Kearsage Pump Station, the Township and the Authority shall pay stipulated penalties of three thousand dollars (\$3,000.00) for each bypass event.

b. If, during the period from the effective date of this Consent Order and Agreement until the termination of this document date, a bypass discharge occurs at the Kearsage Pump Station, the Township and the Authority shall pay stipulated penalties for each day of discharge an amount as determined by the following:

<u>Volume of the Bypass Discharge in Gallons Per Day</u>	<u>Penalty</u>
1-24,999	\$ 750
25,000-74,999	1,500
75,000-149,999	2,250
150,000-299,999	3,000
300,000-1,000,000	3,750
greater than 1,000,000	5,000

c. The penalties described in this paragraph shall be due automatically and without notice and payable to the Clean Water Fund in the manner described in Paragraph 8. It is understood by the parties hereto that

payment of any money hereunder shall neither constitute a waiver of the Township's or the Authority's duty to meet its obligations under this Consent Order and Agreement nor preclude the Department from commencing an action to compel the Township's and the Authority's compliance with the terms and conditions of this Consent Order and Agreement, or any applicable statute, rule, regulation, permit or order of the Department. The penalty provisions set forth in this paragraph are intended to cover discharge violations at the Kearsarge bypass. The Commonwealth reserves the right to assess additional civil penalties and bring an action at law for any other pollution incidents from the Millcreek Township sewage collection system.

11. Nothing set forth in this Consent Order and Agreement is intended nor shall be construed to relieve or limit the Authority's or the Township's obligation to comply with any existing or subsequent statute, regulation, permit or order. In addition, nothing set forth in this Consent Order and Agreement is intended, nor shall it be construed, to authorize any violation of any statute, regulation, order or permit issued or administered by the Department.

12. With regard to matters not addressed by this Consent Order and Agreement, the Department specifically reserves all rights to institute equitable, administrative, civil, and criminal actions for any past, present or future violation of any statute, regulation, permit or order; or for any pollution or potential pollution to the air, land, or waters of the Commonwealth. These rights are cumulative and the exercise of one right does not preclude the exercise of any other.

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13. As to matters addressed by this Consent Order and Agreement, the Department waives only the right to seek civil penalties above the amount specified in Paragraph 8 for the days of violation identified in Paragraph F above. The Department reserves all other rights to institute equitable, administrative, civil and criminal actions with respect to any matter addressed by this Consent Order and Agreement, including the right to require additional measures to achieve compliance with applicable law.

14. The Township's and the Authority's failure to comply with any provision of this Consent Order and Agreement shall be deemed a material breach, and in the event of any such breach, the Department may, in addition to the remedies prescribed herein, institute any equitable, administrative, civil or criminal action, including an action to enforce this Consent Order and Agreement, and an action to obtain any civil penalties waived by Paragraph 8. These remedies are cumulative and the exercise of one does not preclude the exercise of any other. The failure of the Department to pursue any remedy shall not be deemed to be a waiver of that remedy.

15. The Township and the Authority shall inform all persons necessary for the implementation of this Consent Order and Agreement of the terms and conditions of this Consent Order and Agreement. The Township and the Authority shall be liable for any violation of this Consent Order and Agreement caused, contributed to, or allowed by the Township's or the Authority's directors, officers, agents, managers, or servants and privies and any persons, contractors, or consultants acting under or for the Township or the Authority. Except as provided in Paragraph 16.b., the Township and the Authority shall remain liable for any violation of this Consent Order and Agreement caused, contributed or allowed by their successors and assigns.

MSA-MT 6760

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16. a. The parties expressly intend that the duties and obligations under this Consent Order and Agreement shall not be modified, diminished, terminated or otherwise altered by the transfer of any legal or equitable interest in the Millcreek Township sewer system or any part thereof. Should the Township or the Authority intend to transfer any legal or equitable interest in the Millcreek Township sewer system, or any part thereof, the Township or the Authority shall serve a copy of this Consent Order and Agreement upon the prospective transferee of the legal and equitable interest at least thirty (30) days prior to contemplated transfer and shall simultaneously inform the Northwest Regional Office of the Department of such intent.

b. Even if the Department has signed a Consent Order and Agreement, a Consent Decree, or a Consent Adjudication, in which the transferee of an interest in the Millcreek Township sewer system agrees to comply with the terms and conditions of this Consent Order and Agreement, the Township and Authority's duties and obligations under this Consent Order and Agreement are not modified, diminished, terminated or otherwise altered. Where the Department has signed a Consent Order and Agreement, a Consent Decree, or a Consent Adjudication in which the transferee of an interest in the Millcreek Township sewer system agrees to comply with the terms and conditions of this Consent Order and Agreement, the Township or the Authority may request, in writing, the Department to modify or terminate the Township's and the Authority's duties and obligations under this Consent Order and Agreement. The Department's decision to modify or terminate the Township and the Authority's duties under this Consent Order and Agreement shall be in the sole discretion of the Department.

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17. All correspondence with the Department concerning this Consent Order and Agreement shall be addressed to:

Mr. Anthony C. Oprendek, Jr.
Water Quality Compliance Specialist
PA Department of Environmental Resources
1012 Water Street
Meadville, PA 16335

18. All correspondence with the Township concerning this Consent Order and Agreement shall be addressed to:

Mr. Jess Juliante, Supervisor
Millcreek Township
Millcreek Municipal Building
3608 West 26th Street
Erie, PA 16506

and

Mr. Charles Moffett, Township Solicitor
254 West 6th Street
Erie, PA 16507

All correspondence with the Authority concerning this Consent Order and Agreement shall be addressed to:

Mr. Max Gill, Authority Manager
Millcreek Township Sewer Authority
P. O. Box 8332
Erie, PA 16505

and

Mr. Joseph MacKrell, Authority Solicitor
Millcreek Township Sewer Authority
120 West 10th Street
Erie, PA 16501

In addition, the Township and the Authority agree that service of any notice or any legal process for any purpose under this Consent Order and Agreement, including its enforcement, may be made by mailing a copy by first class mail to the respective addresses above.

MSA-MT 6762

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19. The paragraphs of this Consent Order and Agreement shall be severable, and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.

20. This Consent Order and Agreement shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.

21. No changes, additions, modifications, or amendments of this Consent Order and Agreement shall be effective unless they are set out in writing and signed by the parties hereto.

22. The parties agree to bear their respective attorney fees, expenses, and other costs in the prosecution or defense of this matter or any related matters arising prior to execution of this Consent Order and Agreement.

23. Any decision which the Department makes under the provisions of this Consent Order and Agreement shall not be deemed to be a final action of the Department, and shall not be appealable to the Environmental Hearing Board or any court. Any objection which the Township or the Authority may have to the decision will be preserved until the Department enforces this Consent Order and Agreement. At no time, however, may the Township or the Authority challenge the validity of this Consent Order and Agreement, or challenge the Findings agreed to in this Consent Order and Agreement.

24. This Consent Order and Agreement shall be effective as of the last date of signature by the parties.

MSA-MT 6763

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25. The obligations, but not the Findings, of this Consent Order and Agreement shall terminate when the Township and the Authority comply with and implement to the Department's satisfaction the requirements of Paragraphs 2 and 3.

26. Attached hereto as Appendix C is a resolution of the Board of Supervisors of the Township authorizing its signatories below to enter into this Consent Order and Agreement on its behalf.

27. Attached hereto as Appendix D is a resolution of the Authority authorizing its signatories below to enter into this Consent Order and Agreement on its behalf.

IN WITNESS WHEREOF, the parties hereto have caused this Consent Order and Agreement to be executed by their duly authorized representatives. The undersigned representatives of the Township and the Authority certify under penalty of law, as provided by 18 Pa. C.S. §4904, that they are authorized to execute this Consent Order and Agreement on behalf of the Township and the Authority; that the Township and the Authority consent to the entry of this Consent Order and Agreement and the foregoing Findings as an ORDER of the Department, and that the Township and the Authority hereby knowingly waive their rights to appeal this Consent Order and Agreement and the foregoing Findings, which rights may be available under Section 4 of the Environmental Hearing Board

MSA-MT 6764

App. 112

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Act, 35 P.S. §7514, the Administrative Agency Law, 2 Pa. C.S. 103(a), and Chapters 5A and 7A or any other provision of law.

FOR MILLCREEK TOWNSHIP:

Paul J. Vincent 01/07/92
 Name Date
 Title Supervisor

Paul J. Vincent 01/07/92
 Name Date
 Title Supervisor

James R. Ulmer 01/07/92
 Name Date
 Title Supervisor

John J. Haffey 01/07/92
 Name Date
 Attorney for the Township

FOR THE COMMONWEALTH OF PENNSYLVANIA,
DEPARTMENT OF ENVIRONMENTAL RESOURCES:

David E. Milhous 01/07/92
 Name Date
 Regional Water Quality Manager
 Northwest Region

Bruce M. Herschlag 01/07/92
 Name Date
 Assistant Counsel

FOR THE MILLCREEK TOWNSHIP SEWER
AUTHORITY:

John M. Sowle 01/07/92
 Name Date
 Title Chairman

Carol G. Grier 01/07/92
 Name Date
 Title Secretary

Joseph F. Markell 01/07/92
 Name Date
 Attorney for the Authority

MSA-MT 6765

MILLCREEK TOWNSHIP, ERIE COUNTY
MILLCREEK TOWNSHIP SEWER AUTHORITY

537 FACILITIES PLANNING
"SPECIAL STUDY"

TASK ACTIVITY REPORT
&
PLAN OF STUDY

RECEIVED

MAR 28 1991

ENVIRONMENTAL RESOURCES
McGraw-Hill Inc. 1991

FLows ENTERING THE CITY

This portion of the study will result in the determination of present and future flows into the City interceptors and a comparison of those flows with the capacity of the City's interceptor system and the township's transport system at the point of connection.

- 1.1 The existing capacity of the City's regional interceptors at the point of connection and of the township Sewer Authority's transport facilities will be determined from manufacturer's data or calculations using sewer size and slope.
- 1.2 This portion of the study will present information on the existing average and peak flows tributary to the City of Erie from the major/regional connections. These flows will include quantities obtained from flow depth meters (using sewer flow formulas), existing meters at pump stations, and pump capacity curves where meters are not available.
- 1.3 Future flows will be presented for all municipalities who have flows that are or will be tributary to the City of Erie at the points of interconnection between the City and Millcreek Township. Present flows will be included in all calculations. The communities include Millcreek, Fairview, Summit, and Greene Townships, and Fairview Borough. Of those communities Greene Township and Fairview Borough presently discharge no flows.
- 1.4 An interim report will be completed which will include a schematic of the regional interceptor sewers and the Millcreek transport facilities along with a graphic display of present and future flows versus capacities at the interconnections for both the City's receiving sewers and the township's transport facilities.
- 1.5 This task will include the efforts of the township required to provide information to the City for their intended flow study as outlined in their Revised Plan of Study. The schedule provided is constructed to coincide with the City's study effort timing. The township will be utilizing their velocity/depth meter to provide information to the City's 537 revision work.

MSA-MT 6766

SUBREGIONAL INTERCEPTOR NETWORKS

This work will primarily involve flow isolation work within those sewer subsystems known to have flow problems. Flows within the system will be quantified using hand held equipment but no continuously monitoring meter installations are proposed. Timing has been selected to coincide with the City's efforts to monitor the joint municipal sewers.

- 2.1 Suspected problem areas will be identified utilizing township records on basement floodings and known flow capacity problems as evidenced by sewer surcharges and overflows. These problem areas will be placed on a township map.
- 2.2 Flow isolation surveys will be performed on the subregional sewer networks found to have problems. The network will be mapped and key manholes will be identified for visual and hand held monitoring surveys. During high flow conditions the key manholes will be visited to isolate the areas of highest infiltration/inflow contribution. In the event more accurate flow information is required to determine the cost effectiveness of flow abatement, continuously monitoring flow meters will be considered but are not presently included within the time frame of the study.
- 2.3 Utilizing the quantity information obtained in the flow isolation studies and previous studies, the abilities of the Millcreek Township interceptor sewer system to carry existing and future sewage flows within the identified problem areas will be determined.
- 2.4 An interim report will be completed. A map will be constructed showing the subregional areas and identifying problem areas both present and future. Key manholes and interceptor lengths will be indicated and capacity vs. flow charts will be presented for those lengths.

ALTERNATIVE EVALUATION

The remaining capacities of the City's regional/main interceptors will be estimated for present and future loads.

Alternatives for increased conveyance capacity will be presented for the Erie City Regional sewer system and the Millcreek Township Transport Facilities and Subregional Conveyance systems. Evaluations will be completed on the Millcreek facilities alternatives in Task 3.2.

- 3.1 The City's regional interceptors will be mapped and the capacities of key lengths will be presented along with existing flow information including that obtained from past studies as well as more recent efforts. All flow information will be based on flow depths and sewer flow formulas.

Alternatives to increase the capacity of regional interceptors and transport facilities will be presented for City and township facilities alike. This study will not presume to evaluate the alternatives available for the City's system. That will be left for the City's consultant. Alternatives to be considered will include: capacity increases; flow diversion; I&I abatement; storm water flow storage; and combined sewer elimination. The study will

evaluate the alternatives available for the township facilities under Task 3.2. An Interim Report will be submitted for this work at the conclusion of the task.

3.2 This task will evaluate the alternatives available to increase the service area capacity of the Millcreek Township sewerage system. The solutions available will first be defined. They then will be prioritized qualitatively as to their workability, dependability, etc. Then a cost analysis will be completed of the remaining alternatives including an estimate of the costs of increasing the City's interceptor sewage carrying capacity. This will be the only alternative investigated within the City by this study.

Millcreek Township Sewer Authority

PRESQUE ISLE P O BOX 8012
3608 WEST 26TH STREET
ERIE, PENNSYLVANIA
16505

PHONE (814) 833-1111

June 21, 1991

RECEIVED

JUN 24 1991

Mr. Anthony Oprendek, Jr.
Water Quality Compliance Specialist
Pennsylvania Department of Environmental Resources
1012 Water Street
Meadville, PA 16335

ENVIRONMENTAL RESOURCES
Meadville Region Office

RE: Kearsarge Pump Station Bypass

Dear Mr. Oprendek:

The following information is provided in reply to your letter of June 10, 1991 regarding a bypass line from the Kearsarge pumping station forcemain:

1. Date of installation: December 7, 1988
2. Work authorized by : Millcreek Township Sewer Authority
Contractor: Chivers Construction Company, Fairview, PA
3. The bypass was installed due to severe flooding which occurred in the vicinity of the Kearsarge pumping station on October 18, 1988. On that date, following a severe thunderstorm, Walnut Creek and Beaver Run overflowed their banks, causing severe basement flooding in approximately 40-50 homes. Included among the flooded buildings was the Millcreek Community Hospital and Western Reserve Convalescent Home. Both of these buildings were evacuated due to the flooding. The flooding by these streams and the excessive storm water in this entire area filled the sanitary sewer system causing even greater basement flooding since the sewers were not usable to all homes connected to this system. The bypass was installed to remove the excessive stream & storm water flows and to prevent basement flooding.

The Pennsylvania DER should have been notified but was inadvertently not advised.

4. Bypass events - the bypass only operates in situations of possible flooding by Walnut Creek and Beaver Run. The bypass has been opened on two occasions. On March 6, 1991, from 10 PM to 12 AM (2 hours) and the Erie County Health Department was advised of pumping from manholes. The second occasion was in the fall of 1990 for about 6 hours, when Millcreek Township was pumping from manholes to prevent basement flooding. The Erie County Health Department was not advised of this event.
5. Only the Superintendent and Assistant Superintendent of the Sewer Maintenance Department operate the bypass.

MSA-MT 6769

Mr. Oprendek
 June 21, 1991
 Page Two

6. The solution to the bypass is to provide additional sewer capacity through the City of Erie. The Kearsarge station has capacity to pump more water into the Erie sewers than the City sewers can carry. Millcreek has begun flow studies to determine the available sewer capacity in the Erie sewers. However, Millcreek cannot simply "dump" this water at the City's borders. As soon as the sewer studies are completed and solutions are identified, Millcreek is prepared to pay its' share of the cost of these projects.

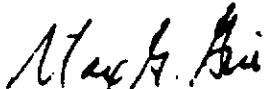
Millcreek Township has taken the following steps to reduce the stream flooding along Walnut Creek and Beaver run:

- A. Beaver Run dredging - to be completed by October 1991
- B. Storm Water Management Ordinance - adopted June 1990 and requires storm water controls for all new subdivisions. Summit Township has adopted a similar ordinance.
- C. Storm water detention facility - proposed 280' X 490' detention area to be constructed adjacent to J. S. Wilson School to reduce flooding along both Beaver Run and Walnut Creek. Expected completion date is 1993.

The Millcreek Township Sewer Authority is prepared to eliminate this bypass as soon as possible. The stormwater controls by Millcreek Township are essential to reduce the storm water flooding of sanitary sewers. Increased sewer capacity across the City of Erie is likewise essential to eliminate this problem. The Pennsylvania DER can play an important role in solving this problem by expediting the efforts to provide increased sewer capacity into the City of Erie.

Very truly yours,

MILLCREEK TOWNSHIP SEWER AUTHORITY



Max G. Gill, Secretary/Manager

MCG/jka

MSA-MT 6770

RESOLUTION 92-R-4

BE IT RESOLVED, that all three members of the Millcreek Township Board of Supervisors and the Township Solicitor are authorized to sign the "Consent Order and Agreement" with the Pennsylvania Department of Environmental Resources and Millcreek Township, dated January 7, 1992.

ADOPTED this 4th day of February, 1992.

MILLCREEK TOWNSHIP SUPERVISORS

Ron J. Martin
Jess S. Jiuliante
James J. Meehan

Jess S. Jiuliante
Secretary

I, Jess S. Jiuliante, III, Secretary of the Township of Millcreek, do certify that the foregoing is a true and correct copy of Resolution 92-R-4 legally adopted at the meeting held on February 4, 1992.

Jess S. Jiuliante
Secretary

MSA-MT 6771

Millcreek Township Sewer Authority

PRESQUE ISLE P.O. BOX 8332
3608 WEST 26th STREET
ERIE, PENNSYLVANIA
16505

PHONE (814) 833-1111

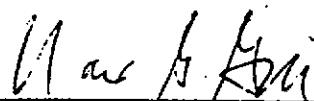
RESOLUTION

IT IS HEREBY RESOLVED THAT THE CHAIRMAN AND THE SECRETARY AND THE SOLICITOR OF THE MILLCREEK TOWNSHIP SEWER AUTHORITY ARE AUTHORIZED TO SIGN THE CONSENT ORDER AND AGREEMENT WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES AND MILLCREEK TOWNSHIP, DATED JANUARY 7, 1992.

This is to certify that the above is a true and correct copy of the Resolution of the Millcreek Township Sewer Authority, approved and adopted at it's meeting of December 19, 1991.



CHAIRMAN



SECRETARY

MSA-MT 6772

ENGINEERING
PLANNING
MANAGEMENT

July 31, 1992

Mr. Tony Oprendek
PA Department of Environmental Resources
1012 Water Street
Meadville, PA 16335

Dear Mr. Oprendek:

155 WEST 8TH STREET

Enclosed please find three (3) copies of the report entitled "Millcreek Township Sewer Authority, Alternative Selection and Implementation Schedule, Sewage Facilities Plan."

That report enumerates the alternatives selected by the Millcreek Township Sewer Authority and develops a schedule to implement those alternatives.

ERIE, PA 16501

This report is submitted in compliance with the Millcreek Township Sewer Authority's Consent Decree with the PA DER in compliance with the revised schedule given and/or discussed in June of this year.

FAX 814/455-6596

If you have any questions regarding the enclosed report, please contact our office.

Very truly yours,

CONSOER, TOWNSEND & ASSOC., INC.

814/453-4394



Gerald C. Allender, P.E.
Project Manager

GCA:lb

Enclosure

cc: Millcreek Township Sewer Authority



MSA-MT 0901

**MILLCREEK TOWNSHIP SEWER AUTHORITY
ALTERNATIVE SELECTION & IMPLEMENTATION SCHEDULE
SEWAGE FACILITIES PLAN**

INTRODUCTION

The Millcreek Township Sewer Authority's alternative selection has been limited to selection of one of two alternative Implementation Plans. The alternatives for physical facilities vary only in accordance with the time frame in which implementation is required. The actual facilities required are relatively straight forward and do not require comparisons of costs. A qualitative evaluation is the only necessary comparison.

The primary problem facing Millcreek Township Sewer Authority is the ability to transport waste flows through the City of Erie to the Erie Wastewater Treatment Plant. Expansion and upgrading of the Erie Wastewater Treatment Plant remains the responsibility of the Erie Sewer Authority as does expansion and upgrading of the West branch or East branch interceptor. Millcreek Township Sewer Authority and the municipalities tributary to the City through Millcreek Township sewers are responsible for payment of their share of the cost of such construction and design but not the implementation of that design.

Similarly, Millcreek Township Sewer Authority is not the primary responsible agency for expansion of City sewers where such expansion is necessary to resolve problems within the City as well as capacity problems facing the township and its tributary municipalities. In that event the City is the responsible agency and Millcreek Township Sewer Authority and its tributary communities are similarly responsible for their cost shares.

Only should a solution be necessary for Millcreek Township Sewer Authority and its tributary municipalities alone would the Millcreek Township Sewer Authority be the lead planning and implementing agency. In the event that such an alternate is considered, then Millcreek Township Sewer Authority would be responsible for the design and implementation wholly of such a project. The ultimate ownership and maintenance responsibility for such a facility within the City of Erie would need to be determined through negotiation but in the past the facilities have been turned over to the City.

Millcreek Township Sewer Authority's problems are capacity problems within the existing sanitary sewer network in the City and in the township where existing flow and/or future flow capacity cannot be provided. Where capacity is now nonexistent, it can be provided in two ways. The first and most secure manner is to provide new capacity in an amount equal to that needed. The second

method, which in many cases is not as secure, would be to remove existing extraneous flows thereby allowing for additional capacity for sanitary sewer flows. In the latter case two means are available. One is to redirect flows without necessarily attempting to reduce or remove those flows at their source. The second would be to eliminate the flows at their source through infiltration/inflow abatement efforts within the system. The success of the latter efforts, however, cannot be reliably predicted and are not considered by the Millcreek Township Sewer Authority as dependable for future planning. This does not mean that such efforts have been abandoned. The Authority recognizes both the illegality and the wasted dollars allocated with treating such flows. The Authority's alternatives presented here for implementation include abatement of storm water and infiltration flows where considered appropriate. The design of the facilities recommended, however, do not place any dependence upon that abatement.

The Millcreek Township Sewer Authority's future and sometimes existing needs can be met by increasing capacity through the City. Two methods for doing so are available. One would be to increase capacity in the south to north direction as well as the west to east. The other would be to increase capacity only in the west to east direction. Since facilities now exist for diverting present south to north flows to an expanded facility flowing from west to east, this alternative has been selected qualitatively as the best alternative. The proposed alternative includes increasing capacity in south to north sewers by diverting flows to a new west-east facility. It does not include the expansion of any north-south facilities until reaching the inner core City areas.

The primary alternative considerations in this discussion have to do with timing of construction and intended use of facilities. The only differential in the proposed construction is deliberating between providing facilities whose sole intent is to transport Millcreek Township Sewer Authority flows and providing facilities whose intent is to provide capacity for Millcreek Township flows and extraneous City flows which create capacity problems within the City interceptor network at a later location.

ALTERNATIVE DESCRIPTION

The primary alternatives have been broken into Alternative A and B. Many of the alternatives are identical, particularly those within the Millcreek Township Sewer network. The main differential is in the facilities which will be constructed within the City to service existing and future Millcreek Township Sewer Authority flows. A map is included as Exhibit 6 which locates each of the alternative construction projects selected for implementation.

Alternative A

Alternative A involves the construction of facilities which would resolve Millcreek Township's existing and future wastewater flow problems on an immediate basis. This alternative would include the construction of a high flow pumping station and force main. The force main would travel the entire distance across the city to a point of interconnection with the Erie Sewer Authority's Westside Interceptor at the foot of Peach Street. The Erie Sewer Authority would then be requested to provide additional capacity in the Westside Interceptor from that point to the Erie Wastewater Treatment Plant under existing agreements between the City and Millcreek Township.

Alternative A is the Millcreek Township Sewer Authority's alternative to Alternative B in the event that either the DER or the City of Erie agree to an interim solution to Millcreek's problem at this time. This construction would include about 25,000 linear ft. of 24" force main and a 11.3 MGD pump station. Estimated construction costs include \$2,500,000 for the construction of the force main and \$500,000 for the construction of the pump station. Total costs estimated are \$3,000,000.

Alternative B

Alternative B would be a more farsighted alternative which would provide for a similar sewer across the City, except such a sewer would be gravity and would be designed in cooperation with the City in a manner which would take, not only Millcreek flows, but any extraneous flows from the City from Greengarden and Liberty Streets and the Canal Street sewer. Such a program would be coordinated with the City's present studies regarding their combined sewer system and would have an implementation date later than would Alternative A. Alternative B would, however, include an interim proposal in which additional flows from Millcreek, both existing and future, could be diverted to the Erie City system which would reduce the amount of overflow and sewer backup within Millcreek Township. The primary difference between these two alternatives is that Alternative A would allow for the immediate or near immediate abandonment of overflows at the Kearsarge Pump Station but would not allow for any project which would incorporate the City's needs as well as the township's needs. Alternative B, on the other hand, would call for some abatement and reduction in that overflow volume but not a complete abandonment of the overflow in the near term but would allow for an ultimate project which took into account both the township's and the City's needs. *5,870,170*

Alternative B-1 is described in Exhibit 1. That alternative includes the Pittsburgh Avenue Relief Sewer. The Authority has authorized Consoer Townsend to initiate the design of this particular alternative and intends to proceed with the project. The proposed project does not include allowing for the construction

of any storage tank facility. It includes providing capacity to handle the entire flows. The estimated cost for that construction, which included approximately 7,000 linear ft. of sewer, was \$815,000. If it is determined that a storage tank is necessary in order to further reduce flows during storm water events, then an additional \$550,000 must be added to this construction price (unless the Authority were to authorize the reduction of the gravity sewer project scope). However, to do so would be to commit to continuous use of the storage tank, an alternative which is feasible but which may not meet with the desires of the Authority.

Alternative B-2

Alternative B-2 is the Greengarden Boulevard Relief Sewer needed to increase the flows now discharged to Manor Drive. The costs are tabulated in Exhibit 2. The costs of the relief sewer in Greengarden Boulevard includes 1,600 linear feet of sewer to be constructed between the present intersection of Greengarden Boulevard with the Bayfront Highway and West 8th Street, and also includes the necessary connections to Manor Drive Interceptor and to the Erie Sewer Authority's Westside Interceptor. Total construction costs, including engineering and legal, is estimated at approximately \$380,000.

Alternative B-3

This alternative includes the rehabilitation of the Manor Drive sewer and the Erie Sewer Authority's West Bank Interceptor from Frontier Park to Cherry Street. The Manor Drive sewer rehabilitation is estimated at \$22,000. The cost of cleaning 6,000 feet of 24" interceptor is estimated at \$80,000. The total estimated cost for this alternative equals \$102,000.

Alternative B-4

Alternative B-4 is for the ultimate solution for the Manor Drive Interceptor relief sewer. This alternative is for the gravity sewer which would service both Millcreek Township and the City. The sewer would extend from Pittsburgh Avenue to the Erie Sewer Authority's Westside Interceptor located at the Foot of Sassafras Street and consists of approximately 19,200 linear feet of 36" gravity sewer. Estimated construction costs (Exhibit 2) for this project is \$3,870,000. To this price tag must be added the costs to the Erie Sewer Authority of construction of an additional 4,200 ft. of 48" pipe to the wastewater treatment plant. That cost is estimated at \$840,000 and would be utilized to transport the flows from Millcreek plus those City flows intercepted at Greengarden and Pittsburgh and from the Canal sewer and would also collect flows from the remaining interceptor sewers from the City on French Street and perhaps Ash Street. Total costs, then, for this alternative are \$4,710,000.

Subalternatives B-4, a through d, given in Exhibit 2, describe the intervening portions of the proposed projects and their individual costs. These are presented because the percent sharing in these costs between the City and the Millcreek Township may differ significantly. That sharing cannot be finally determined until the City completes their studies since it is now unknown how much flows may be diverted by the City.

Alternative C-1

The work involved in this alternative is meant to clean the Railroad Interceptor and the Pittsburgh Avenue Interceptor from the railroad to 12th Street. In so doing, any obstructions should be observable. There are approximately 8,500 feet of sewer involved. Costs are estimated at \$20 per foot because of the difficulty (high flows and traffic). The cost estimate for this alternative equals \$170,000.

Alternative C-2

This task includes completing an Infiltration/Inflow Survey of the Millcreek area tributary to Manor Drive north of the railroad tracks and south of 8th Street and a portion of the City tributary to Pittsburgh Avenue south of the railroad tracks. Costs have only been estimated for the survey. Costs for abatement will depend on the findings of the survey. It is estimated that a three-month survey will be required using five meters and three men. Estimated project costs to include metering, manpower, limited televising, and a final report equals \$50,000.

Alternative C-3

Alternative C-3 includes the Railroad Interceptor relief sewer which will be necessary if our previous conclusion that a blockage exists causing the surcharges in the existing Railroad Interceptor is in error. This relief sewer would be constructed from Peninsula Drive to Pittsburgh Avenue, approximately 4,400 linear ft. of sewer. Estimated construction cost is \$600,000 (Exhibit 2).

Alternative D-1

This alternative allows for the upgrade of the existing Glenwood Pump Station. It consists of enlarging the existing pumps, installation of a new larger force main, and construction of a gravity relief sewer on Wood Street within the City. The estimated cost of the gravity sewer is described in Exhibit 2 and equals \$510,000. There will be 2,800 feet of new 18" force main which at an estimate project cost of \$100 per foot equals \$280,000. The pump station improvements will include three new pumps and a new control system and the installation of a stationary emergency generator. It is estimated that the project cost of the former will equal \$150,000 and the cost of the generator will equal

\$70,000. Total project cost for the pump station upgrade will total approximately \$1,010,000.

Alternative D-2

The visual examination of the Cherry Street sewer revealed signs of past surcharge. The alternative allows for the TV examination of the line to determine if corrective measures are required. Estimate cost equals \$7,500.

Alternative D-3

Alternative D-3 is for the Glenwood Park Avenue relief sewer and will extend from Route 97 to the Glenwood Pump Station, a distance of approximately 5,120 ft. Estimated costs, including engineering and legal, for this alternative is \$490,000. Visual inspections of this line indicted surcharging but there is no known pollution or public health hazard problems.

Alternative E-1

This task includes completing an Infiltration/Inflow survey of the areas tributary to the Kearsarge Pump Station which are suspected of contributing excessive extraneous flows. As previously discussed this includes the area of Millcreek south of Beaver Run and west of Peach Street tributary to the Peach Street sewer. The area also includes the area of Millcreek located directly north of the pumping station. This area was not documented in the flow studies as a problem area but has been added at the suggestion of the township operating personnel. Estimated costs for the survey effort equals \$50,000. Costs for rehabilitation will have to be determined based upon the results of the survey.

Alternative E-2

This task is simply a metering task to better define design flows for the Beaver Run relief sewer described in Alternative E-3. This will be accomplished by the township's employees or the Authority's engineer.

Alternative E-3

Alternative E-3 is for the construction of a relief sewer for the Beaver Run Interceptor. This includes construction of approximately 4,500 linear feet of sewer, crossing Walnut Creek and through the Millcreek Mall. The existing Peach Street sewer would be intercepted at the main entrance to the mall from Peach Street. The interceptor will terminate at the Kearsarge Pump Station. Estimated costs for this alternative is \$530,000 (Exhibit 2).

Alternative F-1

High flows in the past have resulted in basement flooding on 32nd Street. Visual examination of the manholes on 32nd Street revealed signs of surcharge. This work item will allow for the relief of this condition. Costs given are for relief to approximately 38th Street and Legion. However, the preliminary engineering investigation may find that it is only necessary to relieve the sewer to 32nd and Legion. The estimated cost for the entire project is \$70,000.

Alternative G-1

This task includes the construction of a storm water detention basin by the township, not the Sewer Authority. This effort is expected to decrease flooding in the basin which presently is believed responsible for the extreme sanitary sewer flow in heavy storm events. It is believed, once basements flood, that water enters the sanitary sewer system contributing to the high flow conditions. This project, if completed by contractors, is estimated to cost \$1,200,000.

IMPLEMENTATION SCHEDULE

The Millcreek Township Sewer Authority has chosen to select Alternative B as its primary ultimate solution. This selection includes all alternatives under Alternative B including the construction of the Pittsburgh Avenue Interceptor, construction of the Greengarden Interceptor, the cleaning of the Westside Interceptor, and the ultimate construction of a Westside Relief Interceptor to service the needs of Millcreek Township and the City. In so doing the Millcreek Township Sewer Authority assumes approval of interim steps to allow for relief of the existing overflow at the Kearsarge Pump Station. Millcreek Township Sewer Authority also assumes by electing this alternative that there will be participation in the proposed work by the City to the extent that the project benefits the City or is the responsibility of the City under the terms of the Sewer Service Agreement.

The Implementation Schedule developed for the various alternatives is one that is dependent upon the completion of all alternatives. One alternative builds upon the other. Alternative B is primarily meant to move all existing excess flows and future flows through the City of Erie to the Erie Wastewater Treatment Plant. It is meant to provide some capacity in north-south transport lines to allow for additional flows to enter the Erie system from other nonrelieved entry points (Glenwood Pump Station). The initial steps defined under Alternatives B1, B2, and B3 are intended to relieve the existing overflow to Kearsarge station and also to relieve the Ellsworth connection to the City. It will be the first construction step implemented by the township and its facilities

will be utilized to allow additional construction within the township. The final step in Alternative B is the ultimate solution to the Millcreek Township present and future flow need and would be the final step in the Implementation Schedule. The schedule itself is found in Exhibit 3 and a bar graph showing the schedule and its interrelationships with following projects is found in Exhibit 4. Intended construction schedule contemplates completion of Alternatives B1, B2, and B3 in June of 1994. Alternative B4 is the last construction proposed in the entire Implementation Schedule and is not foreseen to be completed until May of 1998. At that point the Millcreek Township Sewer Authority envisions the abandonment of the Kearsarge station overflow.

*Ped
ALV*

It must be pointed out that the Alternative B4 schedule is entirely dependent upon the completion of the City's Consent Decree projects. Further the work is anticipated to be completed by the City and the Erie Sewer Authority and other than for payment and requests to begin construction is beyond the control of the Millcreek Township Sewer Authority to assure its completion. The Millcreek Township Sewer Authority is therefore unable to commit to the May 1998 date. It is presented at this time as a reasonable alternative time as is our understanding of the agreements made regarding the Millcreek Township Sewer Authority's Consent Decree.

Alternative C deals with the Railroad Interceptor and calls initially for the implementation of two additional study or survey projects. Both projects are intended to be implemented immediately upon receiving approvals by the DER for the scheduling and alternatives outlined in this document. The cleaning of the Railroad Interceptor and the Pittsburgh Avenue Interceptor is anticipated to be completed by August of 1993. The infiltration/inflow survey work presented as Alternative C2 is likewise anticipated to be completed by August of 1993. A tentative schedule is put forward to complete any abatement construction recommended by that effort by December of 1994. This date is subject to change depending upon the results of the I&I survey. The design of the relief or repair of the Railroad Interceptor is dependent on the completion of both the cleaning and inspection project and the I&I survey and is shown as being initiated at the completion of those two steps. The termination or completion of that work assumes that the Railroad Interceptor will have to be replaced and calls for completion in November of 1995. Construction of that project is intended to begin in December of 1994. That date was correlated with the completion of Alternatives B1, B2, and B3, to assure that any findings following completion of those projects can be considered in the design of the Railroad Interceptor.

The alternatives defined under Alternative D deal with the Glenwood Pump Station and are meant to dovetail with the work defined under Alternative B. Both Alternatives D2 and D3, however, involve tributary flows to the pump station and do not necessarily require

immediate expansion of the pump station. Expansion of the pump station is defined under Alternative D1. Completion is anticipated in November of 1996 with design to begin only following City concurrence with the expansion of that station. The City's concurrence is anticipated to depend upon the success of the construction of Alternative B and therefore is predicted to come sometime after the completion of Alternative B's construction. That date is December of 1994. It is believed that there is only some blockage or damage to the Cherry Street Interceptor which can be repaired relatively easily. This alternative is anticipated to be completed by the spring of 1993 (April). The Glenwood Park Avenue construction is needed for future service to the Summit Township. It is necessary to do additional metering to develop the design flow requirements for this sewer line. As determined previously this line receives flows from the Lake View Landfill which are currently unpredictable under any available design tables. Therefore, additional flow information is necessary. Also, it is anticipated that a new township agreement will be needed. The anticipated date for completion of construction of this facility is December of 1994 with construction to begin in April of 1994.

Alternative E includes the sewers tributary to the Kearsarge Pump Station. The work reported on previously develops the need for additional I&I survey work within this tributary sewer network. It also develops the need for additional metering on the Beaver Run Interceptor east of Peach Street. Both of these efforts need to be completed prior to design of the Beaver Run Relief Interceptor recommended in the previous section. The work is proposed to begin immediately for the metering and after DER approval for the survey work. Completion of the I&I survey work and the metering are both intended for August of 1993. The abatement work that might be defined by the I&I survey work is proposed to be completed by September of 1994 with confirmation of results awaiting an additional three months or December of 1994. The Beaver Run Relief Interceptor work is intended to begin upon completion of the surveys. It likewise requires township agreements regarding financing and flow needs. It is anticipated that this project will be completed in July of 1995.

Alternative F is intended to be initiated immediately upon approval of the project by the DER or in September of 1992. This construction is anticipated to correct an existing situation. Therefore a permit is not believed necessary from the DER. If a permit is required, the schedule will need to be increased by a period of at least three months to allow for processing. It is also anticipated that this project will not impact downstream areas and therefore may proceed without awaiting any downstream construction.

Alternative G's schedule submitted herein is based upon a schedule submitted to the DER by the Millcreek Township supervisors. That

schedule is attached as Exhibit 5. The dates given in Exhibit 3 are the Authority's interpretation of the township schedule. In any event, it is the intent of the township in their schedule to implement this project over several years using township personnel to complete the majority of the construction. The basin is anticipated by the supervisors to be completed by June 30, 1993. The entire storm sewer network tributary to the basin is anticipated to be complete by July 31, 1995. The Authority upon review of that schedule believes it may be too optimistic given potential budgetary, legal, permitting, and climatic problems. Therefore the completion date in this document is given as June 30, 1996. Several interim dates for completing various portions of the storm sewer piping is included in the township schedule. The township has indicated that their schedule is contingent on the school board and DER approval. It is also contingent upon the successful resolution of any pending legal action.

All the schedules for all the alternatives are outlined in tabular form in Exhibit 3. This exhibit outlines the various steps required to complete the project and gives completion dates for those steps. Exhibit 4 is a graphic display of all the schedules and demonstrates how the various construction steps interrelate to each other. The construction sequences of each project are defined in this graphic display as integral pieces of the entire project. Again it needs to be stressed that the various construction steps in the most part are interrelated and are dependent upon the completion of various initial steps, not the least of which are City approvals to the intended procedure. Where City approval is anticipated not to be needed, then the implementation or initiation of the various projects are dependent only upon the approvals by the DER.

EXHIBIT 1

MSA-MT 0 912

App. 132

TECHNICAL REPORT
FOR
PITTSBURGH RELIEF SEWER

The purpose of this report is to discuss the proposed Pittsburgh Avenue Relief Sewer.

SCOPE

This report contains preliminary design data for sewer line relief of expected flows from the Kearsarge Pump Station Pump #2. The flows presently enter the City of Erie sewer system via a force main to West 38th and Pittsburgh Avenue then via gravity from 38th Street, north along Pittsburgh Avenue to the Manor Drive Interceptor. Existing flows, capacities, and conditions of the system were taken into consideration when determining proposed reliefs. The preliminary design data contains proposed required capacities, construction, and cost estimates.

EXISTING CONDITIONS

Flows

The existing flows from the Kearsarge Pump Station are shown on the table below.

	<u>Pump #1</u>	<u>Pump #2</u>	<u>Total</u>
Avg	1.149 MGD	.493 MGD	1.642 MGD
Peak Storm (Present)	2.664 MGD	2.16 MGD	4.824 MGD
Peak Storm (Eliminating Bypass)	2.664 MGD	6.048 MGD	8.712 MGD

The flows from Pump #2, entering the City of Erie sewer system via Pittsburgh Avenue and Manor Drive, are increased by access to the sewer line along Pittsburgh Avenue from house service connections and side streets. The largest increase to Pittsburgh Avenue occurs from the Millcreek Township Sewer Authority's railroad interceptor at West 20th Street with flows averaging 3.23 MGD and peak storm flows of 13.0 MGD. The flows from Pittsburgh Avenue enter the City of Erie sewer system at the Manor Drive Interceptor at which point average flows are 5.35 MGD with peak flows of 9.96 MGD and peak storm flows of 16.0 MGD.

Construction

The existing sewer system from the Kearsarge Pump Station consists of a 16" force main from Pump #2 to 38th and Pittsburgh Avenue. At 38th and Pittsburgh Avenue the flows enter a gravity system along Pittsburgh Avenue consisting of 1,215 ft. of 12" pipe at 2.36% slope, 4,195 ft. of 15" pipe from .66% to 4.0% slope, 329 ft. of 18" pipe at 1.2% slope, 2,650 ft. of 30" pipe at .44%, and 991 ft. of 36" pipe from .24% to .49% slope. At Manor Drive the flows are handled by a 36" sewer line with a minimum .25% slope.

Capacities

Existing minimum capacities for Kearsarge Pump Station Pumps #1 and #2, Ellsworth Access Point, Pittsburgh Avenue, and Manor Drive are as follows:

	<u>MGD</u>
Kearsarge Pump #1	2.664 (1,850 gpm)*
Kearsarge Pump #2	2.16 (1,500 gpm)*
Ellsworth Avenue	2.664
Pittsburgh Avenue:	<u>Total</u> <u>Available</u>
38th to 36th	8.2 6.04
36th to 23rd	3.1 .72
23rd to Manor Drive	17.5 2.34
Manor Drive	22.8 6.8

* limited by the downstream capacity of the sewer system

Relief Design Criteria

Four possible conditions were looked at when considering design of a relief sewer for Pittsburgh Avenue. The conditions were directly correlated to a known storm flow condition lasting over a fourteen hour period.

Condition 1

The first condition was for a relief sewer to handle flows from Pump #2 in excess of existing flow restrictions of 1,500 gpm. The storm condition utilized for design consideration indicated a total needed rate of flow of 6,050 gpm.

Assuming Kearsarge Pump Station Pump #1 has the ability to continue directing flows to Ellsworth Avenue access at a rate of 1,850 gpm, the required additional relief for Pittsburgh Avenue from West 36th north to West 23rd Street would be 2,700 gpm or 3.89 MGD. This could be handled by construction of an 18" gravity sewer with a slope of .66% from 36th to 23rd.

This condition would also require additional relief for Pittsburgh Avenue from West 23rd Street to West 12th Street for 1,076 gpm or

1.55 MGD of flow. This could be handled by construction of a 15" sewer with a minimum slope of .44%

Condition 2

The second condition was for the relief sewer to handle all flows from Kearsarge Pump Station, both Pumps #1 and #2. Utilizing the same known storm event, the Pittsburgh Avenue sewers would need additional capacities of 2,700 gpm or 3.89 MGD for Pump #2 and 1,850 gpm or 2.66 MGD for Pump #1, totaling an additional 6.55 MGD for a total of 8.71 MGD.

This additional flow would require a 21" gravity sewer at a minimum slope of .66% from West 38th Street north to West 23rd Street. The required additional relief for Pittsburgh Avenue from West 23rd Street to West 12th Street would be 1,956 gpm or 2.82 MGD. This could be handled by construction of an 18" gravity sewer at a minimum slope of .44%. The 16" force main, under this condition, would require a minimum of 4.03 ft. per second velocity to handle the anticipated total flows of 8.71 MGD.

Condition 3

Condition 3 is once again assuming Pump #1 is directing flows via Ellsworth Avenue at a rate of 1,850 gpm and, in addition to that, a one million gallon storage tank would be constructed. This storage tank would handle flows over the fourteen hour storm period of 1,190 gpm leaving a required relief of 1,510 gpm or 2.17 MGD. The required additional capacity would consist of a 15" gravity sewer at a minimum slope of .66% from West 36th Street north to West 23rd Street.

Condition 4

Condition 4 again assumes Pump #1 directing flows to Ellsworth at a rate of 1,850 gpm, in addition, a 500,000 gallon tank would be constructed to handle the peak flows of the fourteen hour storm period. These peak flows lasted for a period of five hours. In preliminary design for proposed relief sewer under this condition a 300,000 gallon tank was utilized, the 500,000 gallon tank will be utilized for a safety factor in case of a greater storm period than the one used for design. The 500,000 gallon tank would provide for a 1,000 gpm rate over the five-hour peak period of this storm leaving an additional 1,700 gpm rate or 2.45 MGD required to be discharged to Pittsburgh Avenue sewers. The required additional relief is a 15" gravity sewer at a .66% minimum slope constructed from West 36th Street north to 23rd Street. Additional relief from West 23rd to West 12th will require an 8" gravity sewer at .44% slope minimum.

It should be noted that existing capacities along Pittsburgh Avenue from West 12th Street north to Manor Drive and those in the Manor

Drive interceptor apparently can handle all of the above mentioned conditions.

All construction of relief gravity sewers was preliminarily designed to be on the west side of Pittsburgh within Millcreek Township and was designed using existing known conditions. The actual design will have to take into consideration projected flows for ultimate population growth.

RELIEF SEWER COST ESTIMATES

Condition 1

With Ellsworth Access taking 1,850 gpm (Kearsarge P.S. Pump #1). Required additional capacity - 2,800 gpm (3.888 MGD) W. 36th to W. 23rd

18" PVC .66% slope min.

Required additional capacity - 1,076 gpm (1.55 MGD) W. 23rd to W. 12th

15" PVC .44% slope min.

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
18" PVC Pipe	5,220 L.F.	46.95 L.F.	\$245,079
15" PVC Pipe	2,400 L.F.	44.21 L.F.	106,104
Manhole	29 Ea.	1,580 Ea.	45,820
Gravel Drive Replacement	562 S.Y.	12.25 S.Y.	6,885
Asph Paving Replacement	2,159 S.Y.	33.65 S.Y.	72,650
Granular Trench Backfill	3,231 C.Y.	13.15 C.Y.	42,488
Granular Fnd. Mat.	100 C.Y.	17.35 C.Y.	1,735
Seeding & Topsoil	3.5 AC	3,100 AC	10,850
15" Pipe in Bored Casing	250 L.F.	130.00 L.F.	30,000
Pump Station Mod.	1 L.S.	-	25,000
Bonds & Insurance	1 L.S.	-	<u>9,390</u>
Contingencies			59,850
Engineering & Legal			<u>65,835</u>
Total			\$724,186

Condition 2

Without Ellsworth Access

Required Additional Capacity - 4,550 gpm (6.552 MGD) W. 38th to W. 23rd

21" @ .66% Slope Min.

Required Additional Capacity - 1,950 gpm (2.82 MGD) W. 23rd to W. 12th

18" @ .44% slope min.

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
21" PVC	5,740 L.F.	51.66 L.F.	\$296,528
18" PVC	2,400 L.F.	46.95 L.F.	112,680
Manhole	31 Ea.	1,580 Ea.	48,980
Gravel Drive	654 S.Y.	12.25 S.Y.	8,012
Asph. Pave.	2,285 S.Y.	33.65 S.Y.	76,890
Granular Backfill	3,400 C.Y.	13.15 C.Y.	44,710
Fnd. Mat.	100 C.Y.	17.35 C.Y.	1,735
Seed & Topsoil	3.7 AC	3,100 AC	11,420
18" PVC in Bored Casing	250 L.F.	150 L.F.	37,500
Pump Station Mod.	1 L.S.	-	25,000
Bonds & Insurance	1 L.S.	-	10,130
Contingencies			67,364
Engineering & Legal			74,100
Total			\$815,100

Condition 3

With Ellsworth Access taking 1,850 gpm (Kearsarge P.S. Pump #1) and a One Million Gallon Storage Tank *
 Required Additional Capacity - 1,510 gpm (2.174 MGD)
 15" @ .66% Slope
 * This condition will provide capacity for a 14 hour storm event

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
15" PVC	5,220 L.F.	44.21 L.F.	\$ 230,776
Manhole	19 Ea.	1,580 Ea.	30,020
Gravel Drive	346 S.Y.	12.25 S.Y.	4,239
Asph. Pavement	1,217 S.Y.	33.65 S.Y.	40,952
Granular Backfill	1,823 C.Y.	13.15 C.Y.	\$ 23,972
Fnd. Mat.	100 C.Y.	17.35 C.Y.	1,735
Seed & Topsoil	2.4 AC	3,100 AC	7,440
One Million Tank	1 Ea.	507,000 Ea.	507,000
Pump Station Mod.	1 L.S.	-	25,000
Bonds & Insurance	1 L.S.	-	12,210
Contingencies			92,634
Engineering & Legal			101,700
Total			\$1,077,878

Condition 4

With Ellsworth Access Taking 1,850 gpm (Kearsarge P.S. Pump) and a 500,000 gallon storage tank *
 Required Additional Capacity - 1,700 gpm (2.45 MGD)
 15" @ .66% Slope

Required Additional Capacity - 76 gpm (.11 MGD)

8" @ .44% slope

* This condition will provide capacity for 5-hour peak in storm event

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
15" PVC	5,220 L.F.	44.21 L.F.	\$230,776
8" PVC	2,400 L.F.	38.19 L.F.	91,656
Manhole	29 Ea.	1,580 Ea.	45,820
Gravel Drive	502 S.Y.	12.25 S.Y.	6,885
Asph. Pavement	2,159 S.Y.	33.65 S.Y.	72,650
Granular Backfill	3,231 C.Y.	13.15 C.Y.	42,488
Fnd. Mat.	100 C.Y.	17.35 C.Y.	1,735
Seed & Topsoil	3.5 AC	3,100 AC	10,850
500,000 Tank	1 Ea.	372,000 Ea.	372,000
Pump Station Mod.	1 L.S.	-	25,000
Bonds & Insurance	1 L.S.	-	12,490
Contingencies			109,035
Engineering & Legal			<u>102,139</u>
Total			\$1,123,524

SUPPLEMENT

TO

TECHNICAL REPORT
FOR
PITTSBURGH RELIEF SEWER

The information in this supplement contains preliminary design data and a cost estimate for relief sewer construction along Pittsburgh Avenue to handle projected ultimate flows. Also contained in this supplement are cost estimates for immediate relief of 1 MGD along Pittsburgh Avenue. Design data utilized projected ultimate flows. The conditions utilized in preliminary design correlate directly to the four conditions (with and without Ellsworth & with and without storage) used in the Technical Report for the Pittsburgh Relief Sewer.

Projected ultimate flows were arrived at by data supplied by townships that access the City of Erie sewer system via Pittsburgh Avenue and by making population projections combined with ultimate water demands. Projected ultimate flows used for preliminary design are shown on the table below.

ULTIMATE FLOW
MGD

AREA ALONG PITTSBURGH AVENUE	CAPACITY	CONDITION 1		CONDITION 2		CONDITION 3		CONDITION 4	
		FLOW	REQ. CAPACITY	FLOW	REQ. CAPACITY	FLOW	REQ. CAPACITY	FLOW	REQ. CAPACITY
38th - 36th 520 L.F.	8.2	8.924	.724 8" @ 4.0%	11.804	3.604 12" @ 4.0%	7.21	-	7.486	-
36th - 20th 5,218 L.F.	3.1	9.144	6.044 21" @ .66%	12.024	8.924 24" @ .66%	7.43	4.33 18" @ .66%	7.706	4.606 18" @ .66%
20th - 12th with 21.673 from railroad interceptor 2,650 L.F.	17.5	30.817	13.317 27" @ .44%	33.697	16.197 30" @ .44%	28.883	11.383 27" @ .44%	29.379	11.879 27" @ .44%
12th - Manor 989 L.F.	21.0	30.817 ⁺	9.817 27" @ .24%	33.697 ⁺	12.697 30" @ .24%	28.883 ⁺	7.883 27" @ .24%	29.379	8.379 27" @ .24%

ULTIMATE FLOW RELIEF SEWER COSTS ESTIMATECondition 1

With Ellsworth access taking 1,850 gpm the required additional capacity is:

West 38th to West 36th - .724 MGD 8" PVC @ 4.0% slope minimum
 West 36th to West 20th - 6.044 MGD 21" PVC @ .66% slope minimum
 West 20th to West 12th - 13.317 MGD 27" PVC @ .44% slope minimum
 West 12th to Manor - 9.817 MGD 27" PVC @ .24% slope minimum

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
8" PVC Pipe	520 L.F.	\$38.19/LF	\$ 19,858.80
21" PVC Pipe	5,218 L.F.	51.66/LF	269,561.80
27" PVC Pipe	2,400 L.F.	60.32/LF	144,768.00
27" PVC Pipe	989 L.F.	90.00/LF	89,010.00
Manhole	35 EA	1,580/EA	55,300.00
Gravel Drive Replacement	682 S.Y.	12.25/SY	8,354.50
Asphalt Paving Replacement	3,665 S.Y.	33.65/SY	123,327.25
Granular Trench Backfill	5,018 C.Y.	13.15/CY	65,986.70
Granular Fnd. Mat.	100 C.Y.	17.35/CY	1,735.00
Seeding & Topsoil	3.7 AC	3,100/AC	11,470.00
27" Pipe in Bored Casing	250 L.F.	210/LF	52,500.00
Pump Station Mod.	1 L.S.	-	25,000.00
Bonds & Insurance	1 L.S.	-	12,170.00
Contingencies			87,904.13
Engineering & Legal			96,694.54
		TOTAL	\$1,063,600.00

Condition 2

Without Ellsworth Access
 Required additional capacity:

West 38th to West 36th - 3.604 MGD 12" @ 4.0% slope minimum
 West 36th to West 20th - 8.924 MGD 24" @ .66% slope minimum
 West 20th to West 12th - 16.197 MGD 30" @ .44% slope minimum
 West 12th to Manor - 12.697 MGD 30" @ .24% slope minimum

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
12" PVC Pipe	520 L.F.	\$44.00/LF	\$ 22,880.00
24" PVC Pipe	5,218 L.F.	55.07/LF	287,355.26
30" Pipe	2,400 L.F.	67.41/LF	161,784.00

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
30" PVC Pipe	989 L.F.	100.00/LF	98,900.00
Manhole	35 EA	1,580/EA	55,300.00
Gravel Drive	722 S.Y.	12.25/SY	8,844.50
Asphalt Pavement	3,897 S.Y.	33.65/SY	131,134.05
Granular Backfill	5,337 C.Y.	13.15/CY	70,181.55
Fnd. Materials	100 C.Y.	17.35/CY	1,735.00
Seed & Topsoil	3.7 AC	3,100/AC	11,470.00
30" PVC in Bored Casing	250 L.F.	225/LF	56,250.00
Pump Station Mod.	1 L.S.	-	25,000.00
Bonds & Insurance	1 L.S.	-	12,810.00
Contingencies	-	-	94,364.44
Engineering & Legal			<u>103,800.88</u>
		TOTAL	\$1,141,800.00

Condition 3

With Ellsworth access taking 1,850 gpm and a one million gallon storage tank.

Required additional capacity

West 36th to West 20th - 4.33 MGD 18" @ .66% slope minimum
 West 20th to West 12th - 11.383 MGD 27" @ .44% slope minimum
 West 12th to Manor - 7.883 MGD 27" @ .24% slope minimum

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
18" PVC Pipe	5,218 L.F.	\$46.95/LF	\$ 244,985.10
27" PVC Pipe	2,400 L.F.	60.32/LF	144,768.00
27" PVC Pipe	989 L.F.	90.00/LF	89,010.00
Manhole	33 EA	1,580/EA	52,140.00
Gravel Drive	561 S.Y.	12.25/SY	6,872.25
Asphalt Pavement	3,439 S.Y.	33.65/SY	115,722.35
Granular Backfill	4,698 C.Y.	13.15/CY	61,778.70
Fnd. Materials	100 C.Y.	17.35/CY	1,735.00
Seed & Topsoil	3.5 AC	1,100/AC	10,850.00
27" Pipe in Bore Casing	250 L.F.	210/LF	52,500.00
One Million Gallon Tank	1 EA	507,000/EA	507,000.00
Pump Station Mod.	1 L.S.	-	25,000.00
Bonds & Insurance	1 L.S.	-	16,620.00
Contingencies			132,898.00
Engineering & Legal			<u>146,187.95</u>
		TOTAL	\$1,608,100.00

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Condition 4

With Ellsworth access taking 1,850 gpm and a 500,000 gallon storage tank.

Required additional capacity.

West 36th to West 20th - 4.606 MGD 18" @ .66% slope minimum
 West 20th to West 12th - 11.879 MGD 27" @ .44% slope minimum
 West 12th to Manor - 8.379 MGD 27" @ .24% slope minimum

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
18" PVC Pipe	5,218 L.F.	46.95/LF	\$ 244,985.10
27" PVC Pipe	989 L.F.	90/LF	89,010.00
27" PVC Pipe	2,400 L.F.	60.32/LF	144,768.00
Manhole	33 EA	1,580/EA	52,140.00
Gravel Drive	561 S.Y.	12.25/SY	6,872.25
Asphalt Pavement	3,439 S.Y.	33.65/SY	115,722.35
Granular Backfill	4,698 C.Y.	13.15/CY	61,778.70
Fnd. Materials	100 C.Y.	17.35/CY	1,735.00
Seed & Topsoil	3.5 AC	3,100/AC	10,850.00
27" Pipe in Bored Casing	250 L.F.	210/LF	52,500.00
.5 Million Gallon Tank	1 EA	372,000/EA	372,000.00
Pump Station Mod.	1 L.S.	-	25,000.00
Bonds & Insurance	1 L.S.	-	15,270.00
Contingencies	-	-	119,263.14
Engineering & Legal	-	-	<u>131,189.45</u>
		<u>TOTAL</u>	<u>\$1,443,100.00</u>

The existing peak flows, flows with additional 1 MGD, and existing capacities along Pittsburgh Avenue are as follows:

<u>Area</u>	<u>Existing Peak Storm Flows</u>	<u>Existing Flows & 1 MGD</u>	<u>Capacity</u>	<u>Upgrade Required</u>
38th to 36th	2.16	3.16	8.2	No
36th to 32nd	2.2	3.2	3.5	Yes
32nd to 29th	2.29	3.24	4.8	No
29th to 24th	2.33	3.33	3.1	Yes
24th to 23rd	2.33	3.33	6.2	No
23rd to 22nd	2.35	3.35	4.8	No
22nd to 21st	2.38	3.38	4.4	Yes
21st to 20th	2.38	3.38	7.3	No
20th to 12th	15.16	16.16	17.5	Yes
12th to Manor	15.16	16.16	21.0	No

Cost estimates for relief sewer construction for the additional 1 MGD were prepared in two ways. Construction of a relief sewer for the entire distance (from 36th Street to 12th Street) and,

secondly, construction of relief sewers for only those sections that will approach their capacity. In each case relief sewer construction cost estimates were arrived at using design data to handle projected ultimate flows under Condition 2 (without Ellsworth Avenue access or storage tanks).

RELIEF SEWER COST ESTIMATES

Relief of entire length of Pittsburgh Avenue sewer from West 36th St. to West 12th Street.

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
24" PVC Pipe	5,218 L.F.	\$55.07/LF	\$287,355.26
30" PVC Pipe	2,400 L.F.	67.41/LF	161,784.00
Manholes	29 EA	1,580/EA	45,820.00
Gravel Drive	630 S.Y.	12.25/SY	7,717.50
Asphalt Pavement	2,518 S.Y.	33.65/SY	84,730.70
Granular Backfill	3,770 C.Y.	13.15/CY	49,575.50
Granular Fnd. Materials	100 C.Y.	17.35/CY	1,735.00
Seed & Topsoil	3.5 AC	3,100/AC	10,850.00
Pump Station Mod.	1 L.S.	-	25,000.00
Bonds & Insurance	1 L.S.	-	10,250.00
Contingencies			102,722.69
Engineering & Legal			<u>92,000.00</u>
		TOTAL	\$879,540.00

Relief of only stretches of sewer with available capacities after addition of 1 MGD of less than 1 MGD above 20th and 4.0 MGD below 20th.

West 36th to West 32nd - +.3 MGD
 West 29th to West 24th - .23 MGD
 West 22nd to West 21st - +1.0 MGD
 West 20th to West 12th - +1.34 MGD

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
24" PVC Pipe	2,846 L.F.	\$55.07/LF	\$156,729.22
30" PVC Pipe	2,400 L.F.	67.41/LF	161,784.00
Manholes	19 EA	1,580/EA	30,020.00
Gravel Drive	434 S.Y.	12.25/SY	5,316.50
Asphalt Pavement	1,828 S.Y.	33.65/SY	61,512.20
Granular Backfill	2,735 C.Y.	13.15/CY	35,965.25
Granular Fnd. Materials	100 C.Y.	17.35/CY	1,735.00
Seed & Topsoil	2.41 AC	3,100/AC	7,471.00
Pump Station Mod.	1 L.S.	-	25,000.00

<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
Bonds & Insurance	1 L.S.	-	8,290.00
Contingencies			74,074.48
Engineering & Legal			<u>74,000.00</u>
		TOTAL	\$641,915.00

MSA-MT 0 924

App. 144

EXHIBIT 2

App. 145

MSA-MT 0 925

ALTERNATIVE B - 2 - GREENGARDEN BLVD. RELIEF SEWER

ITEM NO.	EST. QUANT	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
UNIT PRICE CONSTRUCTION ITEMS					
1	1600	LF	36" - CLASS 4 RCP GRAVITY SEWER PIPE	\$102.44	\$163,904.00
2	6	EA	CONCRETE MANHOLE CHAMBERS	\$8,700.00	\$52,200.00
3	6	EA	MANHOLE FRAMES & COVERS	\$225.20	\$1,351.20
4	50	CY	GRANULAR FOUNDATION MATERIAL	\$19.18	\$959.00
5	1175	CY	SAND OR GRAVEL BACKFILL	\$14.38	\$16,896.50
6	704	SY	PVMT. REPLACE ASPH ROAD	\$27.16	\$19,120.64
7	100	LF	CONCRETE PIPE ENCASEMENT	\$133.61	\$13,361.00
8	0.7	AC	SEEDING & TOPSOIL	\$1,300.00	\$910.00
LUMP SUM CONSTRUCTION ITEMS					
9	1	LS	CONNECTION MANOR DRIVE INTERCEPTOR	\$21,740.00	\$21,740.00
10	1	LS	CONNECTION FRONTIER PARK	\$16,307.00	\$16,307.00
11	1	LS	BONDS & INSURANCE	\$5,601.24	\$5,601.24
			TOTAL CONSTRUCTION ESTIMATE (ITEMS 1-11)	\$312,350.58	
			CONTINGENCIES (10% CONST. ESTIMATE)	\$31,235.06	
			ENGINEER & LEGAL (11% CONST. & CONTINGENCIES EST.)	\$37,794.42	
			TOTAL COST ESTIMATE ALTERNATIVE B - 2	\$381,380.06	

ALTERNATIVE B-4 – MANOR DRIVE INTERCEPTOR RELIEF SEWER

ITEM NO.	EST. QUANT	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
UNIT PRICE CONSTRUCTION ITEMS					
1	19200	LF	36" – CLASS 4 RCP GRAVITY SEWER PIPE	\$102.44	\$1,966,848.00
2	50	EA	CONCRETE MANHOLE CHAMBERS	\$8,700.00	\$435,000.00
3	50	EA	MANHOLE FRAMES & COVERS	\$225.20	\$11,260.00
4	100	CY	GRANULAR FOUNDATION MATERIAL	\$19.18	\$1,918.00
5	18500	CY	SAND OR GRAVEL BACKFILL	\$14.38	\$266,030.00
6	15360	SY	PVMT. REPLACE ASPH ROAD	\$27.16	\$417,177.60
LUMP SUM CONSTRUCTION ITEMS					
7	1	LS	CONNECTION PITTSBURGH AVE.	\$16,307.00	\$16,307.00
8	1	LS	CONNECTION WEST SIDE INTERCEPTOR	\$21,740.00	\$21,740.00
9	1	LS	BONDS & INSURANCE	\$33,272.00	\$33,272.00
			TOTAL CONSTRUCTION ESTIMATE (ITEMS 1-9)	\$3,169,552.60	
			CONTINGENCIES (10% CONST. ESTIMATE)	\$316,955.26	
			ENGINEER & LEGAL (11% CONST. & CONTINGENCIES EST.)	\$383,515.86	
			TOTAL COST ESTIMATE ALTERNATIVE B-4	\$3,870,023.72	

ALTERNATIVE B - 4(a-d) - SECTIONAL PROJECT COST ESTIMATES

DESCRIPTION		% OF TOTAL PROJECT TO PROJECT	PROJECT ESTIMATE
FROM	TO		
a) PITTSBURGH AVE.	GREENGARDEN BLVD.	20.8%	\$804,964.93
PITTSBURGH AVE.	CRANBERRY ST.	37.5%	\$1,451,258.90
b) GREENGARDEN BLVD.	CRANBERRY ST.	16.7%	\$646,293.96
PITTSBURGH AVE.	PLUM ST.	64.6%	\$2,500,035.33
c) CRANBERRY ST.	PLUM ST.	27.1%	\$1,048,776.43
GREENGARDEN BLVD.	PLUM ST.	43.8%	\$1,695,070.39
PITTSBURGH AVE.	WEST SIDE INTERCEPTOR	100.0%	\$3,870,023.72
d) PLUM ST.	WEST SIDE INTERCEPTOR	35.4%	\$1,369,988.40
CRANBERRY ST.	WEST SIDE INTERCEPTOR	62.5%	\$2,418,764.83
GREENGARDEN BLVD.	WEST SIDE INTERCEPTOR	79.2%	\$3,065,058.79

ALTERNATIVE C-3 - RAILROAD INTERCEPTOR RELIEF SEWER

ITEM NO.	EST. QUANT	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
UNIT PRICE CONSTRUCTION ITEMS					
1	4400	LF	27" - CLASS 4 RCP GRAVITY SEWER PIPE	\$71.43	\$314,292.00
2	13	EA	PRECAST MANHOLE BASE - 60"	\$1,000.00	\$13,000.00
3	130	VF	MANHOLE SIDEWALL - 60"	\$150.00	\$19,500.00
4	13	EA	MANHOLE FRAMES & COVERS	\$225.20	\$2,927.60
5	50	CY	GRANULAR FOUNDATION MATERIAL	\$19.18	\$959.00
6	5470	CY	SAND OR GRAVEL BACKFILL	\$14.38	\$78,658.60
7	2980	SY	PVMT. REPLACE GRAVEL	\$6.74	\$20,085.20
LUMP SUM CONSTRUCTION ITEMS					
8	1	LS	CONNECTION PENNISULA DRIVE	\$16,307.00	\$16,307.00
9	1	LS	CONNECTION PITTSBURGH AVE.	\$16,307.00	\$16,307.00
10	1	LS	BONDS & INSURANCE	\$8,230.45	\$8,230.45
TOTAL CONSTRUCTION ESTIMATE (ITEMS 1-10)				\$490,266.85	
CONTINGENCIES (10% CONST. ESTIMATE)				\$49,026.69	
ENGINEER & LEGAL (11% CONST. & CONTINGENCIES EST.)				\$59,322.29	
TOTAL COST ESTIMATE ALTERNATIVE C-3				\$598,615.82	

ALTERNATIVE D-1 - WOOD STREET RELIEF SEWER

ITEM NO.	EST. QUANT	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
UNIT PRICE CONSTRUCTION ITEMS					
1	4000	LF	24" - SDR 35 PVC GRAVITY SEWER PIPE	\$65.24	\$260,960.00
2	11	EA	PRECAST MANHOLE BASE - 48"	\$521.57	\$5,737.27
3	110	VF	MANHOLE SIDEWALL - 48"	\$68.99	\$7,588.90
4	11	EA	MANHOLE FRAMES & COVERS	\$225.20	\$2,477.20
5	70	CY	GRANULAR FOUNDATION MATERIAL	\$19.18	\$1,342.60
6	3780	CY	SAND OR GRAVEL BACKFILL	\$14.38	\$54,356.40
7	2268	SY	PVMT. REPLACE ASPH ROAD	\$27.16	\$61,598.88
8	0.4	AC	SEEDING & TOPSOIL	\$1,300.00	\$520.00
LUMP SUM CONSTRUCTION ITEMS					
9	1	LS	CONNECTION WEST GRANDVIEW	\$8,700.00	\$8,700.00
10	1	LS	CONNECTION WEST 38th.	\$8,700.00	\$8,700.00
11	1	LS	BONDS & INSURANCE	\$7,179.72	\$7,179.72
			TOTAL CONSTRUCTION ESTIMATE (ITEMS 1-11)	\$419,160.97	
			CONTINGENCIES (10% CONST. ESTIMATE)	\$41,916.10	
			ENGINEER & LEGAL (11% CONST. & CONTINGENCIES EST.)	\$50,718.48	
			TOTAL COST ESTIMATE ALTERNATIVE D-1	\$511,795.54	

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